



**Module 5**

# It's About Time— and Patterns, Too

Home Instructor's Guide: Days 10–18  
and  
Assignment Booklet 5B



Learning  
Technologies  
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**Alberta**  
LEARNING





Grade Two Mathematics  
Module 5: It's About Time—and Patterns, Too  
Home Instructor's Guide: Days 10–18 and Assignment Booklet 5B  
Learning Technologies Branch  
ISBN 0-7741-1963-2

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Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
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## Module 5: It's About Time—and Patterns, Too

### Daily Summary




#### Day 10

The student continues to identify and describe patterns.

#### Day 10: Lesson 1

The student learns the smallest piece of a pattern is called a stem. Discuss the term *stem* and how it is used in nature. Describe how this relates to a stem of a pattern. Tell the student it is a small, yet important, piece of the main pattern, just as the stem of a flower is important because it supports the flower.



















#### Answers

1.    or arrow, arrow, triangle
2.
  - a. purple, grey, white
  - b. white, white, white, purple, purple
  - c. white, white, purple

#### Day 10: Lesson 2

The student copies Elena's and Jasper's patterns using sounds, actions, and pictures. For example, Jasper's happy, sad, angry face pattern can be represented in sound like this: clap, snap, stomp; in action like this: jump, kick, squat; in pictures like this: apple, orange, pear; and in cubes like this: red, blue, green. Any combinations can be used as long as the abc pattern is followed. Elena's pattern is abaab.

#### Answers

1. a.        
- b. This pattern is small, big, bigger.
2. a.          
- b. This pattern is X, O, X, X.





b. This pattern is square, triangle up, square, triangle down.

### Day 10: Lesson 3

The student is introduced to patterns that change with each repetition. For example, in this pattern, two equal signs and exclamation marks are added each time the pattern is repeated:

!/==/!!!/====/!!!!/=====!!!!!!/. Since this is a more complicated pattern, spend more time on it with the student. Ensure he or she understands this concept before continuing.

Have the student design and create new patterns of his or her own. Display the patterns.

### Answers

1. a. The pattern is that two letters are added each time.

b. **AAAAAABBBBBBBB**

2. a. The pattern is that one number sign and one star are added with each repetition.

b. **## ## ## ## \* \* \* \***

3. a. The pattern is that one plus sign and one dollar sign are added each time.

b. **++++|\$\$\$\$|+++++|**

Have the student do the assignment for Day 10 after completing the day's lessons.




### Day 11

The student continues to identify and describe patterns.

### Day 11: Lesson 1

*Anno's Counting Book* is an excellent reference for this lesson. If possible, buy or borrow this book from the library and have the student read it.

## Answers

1. a. 3  
b. Each triangle represents one.
2. a. 46  
b. Four squares are four tens and six triangles are six ones.
3. a.   
b. One square is one ten and seven triangles are seven ones.
4. a.   
b. Eight squares are eight tens and two triangles are two ones.
5. a.   
b. Three squares are three tens and one triangle is one one.

Have the student do the assignment for Day 11 after completing the day's lessons.

## Day 12

The student continues to identify and describe patterns. The focus is on patterns that grow.

### Day 12: Lesson 2

Assist the student in looking for growing patterns in the immediate surroundings. These can include needles on evergreens, leaves on trees, even the soles of your shoes, and so on.

## Answers

1. The student should show a row of four squares, then five squares, and then six squares.
2. a. This pattern grows to five, six, and so on, triangles in a column.  
b. This pattern grows in groups of two and also changes colour in every repetition.



## Day 13

The student continues to identify and describe patterns. The focus is on identifying mistakes in patterns.

### Day 13: Lesson 1

Help the student identify the mistakes in the patterns. The student must closely observe the pattern to identify any mistakes. Have the student say the pattern out loud. In the first example, the pattern is circle, square, triangle. The student repeats this until the mistake is found.

#### Answers

The mistakes are underlined.

1. A B A A B A B A A B A B A A C A B A A B

Change the C to a B.

2. hot cold warm hot cold warm hot warm cold hot cold warm

Cold should come before warm.

3. 

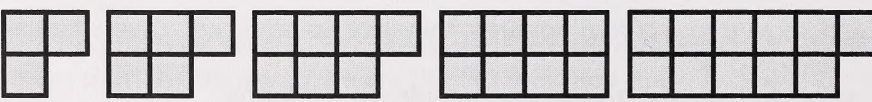
Add a right-facing triangle to the one that is underlined.

4.  $\div + + \div \div \div + + + + \div \div \div \div \div + + \div \div \div \div \div \div \div$

Add another four + .

5. 

Add one more right-facing slanted line.

6. 

Add one more square to the top row.

**Day 13: Lesson 2**

Have the student draw sound and action patterns based on three of the patterns in Lesson 1. For example, the first pattern, ABAAB, can be represented by sound this way: clap, stomp, clap, clap, stomp; and by action this way: hop, wave, hop, hop, wave. Then have the student perform the sounds and actions for the patterns.

Have the student do the assignment for Day 13 after completing the day's lessons.

**Day 14**

The student continues to identify and describe patterns.

**Day 14: Lesson 1**

Examples of patterns in the One Hundred Chart are as follows:

- The second digits of all the numbers in each column are numbered 1 through 0.
- The numbers in each row have the same second digit as the row above it.
- The first digits of all the numbers in each row are numbered 1 through 0.
- The second digits of the numbers in each diagonal line are numbered 1 to 10.

**Day 14: Lesson 2**

The patterns the student may see when skip counting by 2s are as follows:

- The pattern by columns is white, red.
  - Every second column is coloured red.
  - The second digit of every number in the first column that is coloured red is a two.
  - The second digit of every number in the second column that is coloured red is a four.
  - The second digit of every number in the third column that is coloured red is a six.
  - The second digit of every number in the fourth column that is coloured red is an eight.
  - The second digit of every number in the fifth column that is coloured red is a zero.
- The student may see other patterns as well.



The similarities between the two charts are that the columns are completely coloured in and all the coloured lines are vertical, or go straight up and down. The difference is in the number of columns coloured in. The patterns the student may see when skip counting by 5s are as follows:

- The pattern by columns is white, white, white, white, blue.
- Every fifth column is coloured blue.
- The second digit of every number in the first column that is coloured blue is a five.
- The second digit of every number in the second column that is coloured blue is a zero. The student may see other patterns as well.

When skip counting by 3s, the chart looks different than when skip counting by 2s or 5s. The charts do not look alike. This chart has diagonal lines filled in, where the other two have vertical lines. The patterns the student may see when skip counting by 3s are as follows:

- The diagonal pattern is white, white, yellow.
- The second digit of every number in each of the rows go in numerical order.
- The first digit of every number in each of the rows go in numerical order from the top (excluding the top row). The student may see other patterns as well.

Depending on the number the student chooses to skip count, the patterns will be different for each one. Encourage the student to see all the patterns and the similarities and differences between the other three.

### Day 14: Lesson 3

Give the student an opportunity to create his or her own number patterns.

#### Answers

- |                                |                                   |
|--------------------------------|-----------------------------------|
| 1. 15, 30, 15, 40              | 5. 60, 58, 56, 54, 52             |
| 2. 6, 9, . . . , 24, 27        | 6. 77, 75, 73, . . . , 63, 61, 59 |
| 3. 38, 40, . . . , 46, 48, 50  | 7. 4, . . . , 20, 24, 28, 32      |
| 4. 100, 90, . . . , 60, 50, 40 | 8. 57, 67, 77, 87, 97             |



**Day 14: Lesson 4****Answers**

1.
  - a. The rule is add 3.
  - b. The rule is subtract 8. The pattern decreases by 8.
  - c. The rule is subtract 5. The pattern decreases by 5.
  - d. The rule is add 6. The pattern increases by 6.
2.
  - a. Jasper collected 30 marbles on the sixth day.
  - b. Elena saved 21 dollars in the seventh week.

Have the student do the assignment for Day 14 after completing the day's lessons.

**Day 15**

The student learns to create and extend patterns.

**Day 15: Lesson 1**

Discuss extending the stem of patterns. Tell the student that extending a pattern means to keep it going or to lengthen it.

**Day 15: Lesson 3**

The student follows directions to make and extend a pattern.

**Day 15: Lesson 4**

The student will create a picture-pattern poster. You will need poster paper or two pieces of  $8\frac{1}{2} \times 11$  paper taped together to form one large sheet. Have the student cut pictures out of magazines, wallpaper sample books, and so on. Or, the student may draw pictures to make a pattern. Have the student extend the pattern across and down the sheet. Or, the student may create a number of different patterns and extend each one across the sheet to complete a row.

**Day 16**

The student continues to create and extend patterns.

**Day 16: Lesson 1**

Take out the One Hundred Chart and have the student count by 5s while pointing to each one. Point out that when skip counting by 5s, the numbers always end in either 0 or 5.

**Answers**

1. 25, 30, 35, 40, 45
2. a. 70, 85                      b. 48, 54, 69, 76, 81, 93
3. Accept any two of these numbers: 85, 90, 95, or 100.
4. Accept any four of these numbers: 56, 57, 58, 59, 61, 62, 63, 64, 66, 67, 68, or 69.

**Day 16: Lesson 2****Answers**

1. 4, 6, 8, 10
2. a. 34, 48                      b. 23, 45, 51
3. Accept any three of the following: 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, or 100.
4. Accept any four of the following: 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, or 71.

**Day 16: Lesson 3****Answers**

1.  $+3=====$
2. 6, 9, 12, 15
3. a. 30, 36                      b. 25, 29, 40



4. Accept any three of the following: 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 72, 75, 78, 81, 84, 87, 90, 93, 96, or 99.
5. Accept any four of the following: 61, 62, 64, 65, 67, 68, 70, 71, 73, 74, 76, 77, 79, 80, 82, 83, 85, 86, 88, or 89.

### **Day 16: Lesson 4**

#### **Answers**

1.  $+4=====$
2. 8, 12, 16, 20
3. a. 28, 40                                      b. 33, 39, 42
4. Accept any three of the following: 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, or 100.
5. Accept any four of the following: 61, 62, 63, 65, 66, 67, 69, 70, 71, 73, 74, 75, 77, 78, 79, 81, 82, 83, 85, 86, 87, 89, or 90.
6. a. 2, 3, 4, 5, 6, 7, 8                                      g. 68, 66, 64, 62, 60, 58, 56  
     b. 4, 6, 8, 10, 12, 14, 16                                      h. 54, 51, 48, 45, 42, 39, 36  
     c. 6, 9, 12, 15, 18, 21, 24                                      i. 56, 52, 48, 44, 40, 36, 32  
     d. 8, 12, 16, 20, 24, 28, 32                                      j. 80, 75, 70, 65, 60, 55, 50  
     e. 10, 15, 20, 25, 30, 35, 40                                      k. 80, 70, 60, 50, 40, 30, 20  
     f. 20, 30, 40, 50, 60, 70, 80

Have the student do the assignment for Day 16 after completing the day's lessons.

### **Day 17**

The student translates patterns from one mode to another.

## **Day 17: Lesson 2**

Have the student demonstrate Elena's name pattern in the ways listed; then, print or draw how that was done.

## **Day 17: Lesson 3**

The student learns the term *translate*. Explain the term to the student and how it relates to patterns. Translating a pattern means to change it from one form to another. The pattern itself does not change. For example, ABBA becomes 2442 (or 1331, or 6996, or any numbers that follow the abba pattern). Have the student snap A, clap B twice, then snap A. Have the student show the pattern with actions. This will reinforce the idea that one pattern can change, or translate, into another form.

Here is an example of how the student can create a pattern from manipulatives: the pattern AABAA can be shown as bean, bean, macaroni, bean, bean. The interlocking cubes would be red, red, blue, red, red. The shapes would be ▲▲●▲▲. Sounds would be snap, snap, clap, snap, snap. Actions would be hop, hop, sit, hop, hop. Ensure the student understands this concept and applies it using the manipulatives, sounds, actions, and so on, in the lesson.

Have the student do the assignment for Day 17 after completing the day's lessons.

## **Day 18**

This is a review of the module.

### **Answers**

1. a. minutes                                      d. hours  
     b. hours                                        e. minutes  
     c. hours
2. a. 60  
     b. 24  
     c. 7  
     d. Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday  
     e. 12  
     f. January, February, March, April, May, June, July, August, September, October, November, December
3. a. more                                        b. less



4. a. 120  
b. There are 60 minutes in one hour, so there are 120 minutes in two hours.
5. a. 72  
b. There are 24 hours in one day, 48 hours in two days, and 72 hours in three days.
6. more
7. more
8. less
9. 3

10.

**MAY**

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

11. a. Tuesday  
b. Friday  
c. Sunday  
d. Monday  
e. Sunday  
f. Saturday
12. a. 10th  
b. 23rd  
c. 5th  
d. 18th  
e. 29th
13. a. 37  
b. 18  
c. 60

14. circle, circle, square, square

15. a.

b. rectangle, rectangle, arrow up, rectangle, rectangle, arrow down

16. ★ ☐ ☐ ☐ ☐ ☐

17. a. 

- b. 

- c. 

- d. 

18. The underlined item shows the mistake.

- a. b B c C d D e E f F G g h H i I j J k K l L

Reverse these letters.

- b. hop run skip hop hop run run skip skip hop hop run run run skip skip skip

Add a hop.

- c. 

Add a circle.

- d. @\*@@@\*#@@@@\*#@@@@\*#####@@@@@\*####@\*#####

Add two asterisks.

- e. 

Add two rectangles.

19. a. 20, 25, 30, ..., 50, 55

- b. 20, 18, 16, 14

- c. 70, 60, . . . , 30, 20

- d. 30, 33, 36, 39

20. a. Add 4.

- b. Subtract 7.

- c. Add 10.



21. a. 18, 21, 24, 27, 30  
b. 36, 42, 48  
c. You are skip counting by 3s.
22. You will see any four even numbers over 50.
23. You will not see any four odd numbers between 60 and 80.

When the student finishes the activities on Day 18, direct him or her to the Student Survey and Student Checklist in Assignment Booklet 5B. The student may work on these alone or with your help. Go over the responses and discuss them with the student. Give additional instruction as needed for any of the concepts the student has indicated he or she needs help with.

Ensure that you complete the Home Instructor's Evaluation Checklist and Home Instructor's Feedback forms for Days 10 to 18. The Home Instructor's Feedback is to give any information you think may be helpful for the teacher to know.

**Submit Assignment Booklet 5B for marking.**





## ASSIGNMENT BOOKLET 5B

Grade Two Mathematics  
Module 5: Days 10–18

### Home Instructor's Comments and Questions

\_\_\_\_\_  
Home Instructor's Signature

### FOR SCHOOL USE ONLY

Assigned Teacher:  
\_\_\_\_\_

#### Grading

Mathematics:  
\_\_\_\_\_

Neatness:  
\_\_\_\_\_

Date Assignment Booklet  
Received:  
\_\_\_\_\_

**FOR HOME INSTRUCTOR USE**  
(if label is missing or incorrect)

Student File Number:  
\_\_\_\_\_

#### Grading Scale

- A – Very Satisfactory
- B – Satisfactory
- C – Needs Attention
- D – Unsatisfactory

Apply Module Label Here

Name

Address

Postal Code

*Please verify that preprinted label is for  
correct course and module.*

### Teacher's Comments

\_\_\_\_\_  
Teacher's Signature

Home Instructor: Keep this sheet when it is returned to you as a record of the student's progress.

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- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

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**Module 5**

# **It's About Time— and Patterns, Too**

Assignment Booklet 5B



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Grade Two Mathematics  
Module 5: It's About Time—and Patterns, Too  
Assignment Booklet 5B  
Learning Technologies Branch

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Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
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1. Complete the pattern.



2. Describe the pattern.

\_\_\_\_\_

\_\_\_\_\_

3. Complete the pattern.



4. Describe the pattern.

\_\_\_\_\_

\_\_\_\_\_



Look at the pattern.

$1 = \square$

$10 = \blacksquare$

1. Using the pattern, show these numbers.

a. 24

c. 18

b. 41

d. 65



1. Put a green X on the mistakes in the patterns. Then draw the correct pattern.

a. **S S t U S S t U S S v U S S t U S S t U**

b. jump skip run jump jump skip skip run run jump jump jump skip skip run run  
run

c. 

d. */ \* // \*\* /// \*\*\* //// \*\*\*\*\* //\*\*\*\*\**

e. ☆+☆++☆++++☆++++☆++++☆++++



1. Study these patterns and fill in the missing numbers.

a. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 65, 70, 75, \_\_\_\_\_, \_\_\_\_\_

b. 18, 16, 14, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

c. 20, \_\_\_\_\_, \_\_\_\_\_, 50, 60, \_\_\_\_\_, \_\_\_\_\_

d. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 33, 36, 39

2. Study the patterns and print the rule.

a.

Rule:	
Input	
4	9
11	16
7	12

c.

Rule:	
Input	
6	16
2	12
15	25

b.

Rule:	
Input	
13	10
8	5
11	8




3. Solve the problem.

Mustafa had four fish in his tank one week. The next week he had eight. The week after that he had twelve. How many fish will Mustafa have in the sixth week?

Show your work.

Week 1 

Week 2 

Week 3 

a. Week 4

b. Week 5

c. Week 6

d. Mustafa will have  fish in the sixth week.






1. These numbers were pressed on a calculator. Use your calculator.



- a. What will be the next five numbers to appear on the calculator screen?

\_\_\_\_\_

2. a. If you keep pressing , which of these numbers will appear? Circle them.

50      52      56      61      65      74      75      80

- b. Why will the numbers you circled appear?

\_\_\_\_\_  
\_\_\_\_\_

3. Print the keys you would press on the calculator if you wanted to skip count by 2s in the boxes.

4. What are four numbers over 40 you will see on your calculator screen if you skip counted by 2s?

\_\_\_\_\_

5. What are four numbers between 50 and 70 you will not see on your calculator if you skip counted by 2s?

\_\_\_\_\_

Look carefully at the following pattern. Then follow the directions to translate the pattern into different forms.



1. Translate the above pattern into numbers.

---

2. Translate the pattern into letters.

---

3. Translate the pattern into actions.

---



## Student Survey

### Days 10 to 18

Think about what you have learned in Days 10 to 18. Then answer these questions.

What did you like best about working with patterns in Days 10 to 18?

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---

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---

---

List **three** things you learned about patterns in Days 10 to 18.

---

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## Assignment Booklet 5B

What would you like to know more about?

---

---

---

---

---

---

Is there something you still need help with?

---

---

---

---

---

---

.....



## Student Checklist

Days 10 to 18

I Know . . .	Put a check mark beside the things you can do.
1. what a pattern is	
2. how to describe a pattern	
3. how to make a pattern	
4. how to translate patterns from one form to another	

## Home Instructor's Evaluation Checklist

Days 10 to 18

Specific Outcomes/ Concepts Learned  The student . . .	Has the student mastered the concept (yes or no)?
1. identifies and describes patterns, including numerical and non-numerical patterns	
2. creates, extends, and describes the patterns	
3. translates patterns from one form to another	



## Home Instructor's Feedback

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.



# Student Checklist

Day 10-12

Task	Completed
Read and understand the assignment	
Research the topic	
Write the introduction	
Write the body paragraphs	
Write the conclusion	
Revise and edit the paper	
Proofread the paper	
Submit the paper	

## Home Interview - Evolution Checklist

Day 10-12

Task	Completed
Read and understand the assignment	
Research the topic	
Write the introduction	
Write the body paragraphs	
Write the conclusion	
Revise and edit the paper	
Proofread the paper	
Submit the paper	